## CLAIMS

What is claimed is:

1. A transistor header assembly for use in optical systems comprising:

a base having a device side and a connector side;

a platform extending through both the device side and the connector side, wherein the platform includes an electrically conductive pathway extending substantially through the platform;

an externally modulated laser ("EML") mechanically coupled to the platform and electrically coupled to the conductive pathway; and

a cap mechanically secured to the base.

2. A transistor header assembly as set forth in claim 1 further comprising an active temperature control device thermally coupled to the platform wherein at least a portion of the active temperature control device is coupled to the device side of the platform.

3. A transistor header assembly as set forth in claim 1 further comprising a temperature sensing device thermally coupled to the platform wherein at least a portion of the temperature sensing device is coupled to the device side of the platform.

4. A transistor header assembly as set forth in claim 1 further comprising a laser driver and a laser bias circuit mechanically coupled to the platform and electrically coupled to the EML.

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5. A transistor header assembly as set forth in claim 1 wherein the EML comprises a load impedance, wherein the conductive pathway is constructed to form a transmission line and wherein the transmission line is adapted to match the load impedance to a laser driving source.

6. The transistor header assembly as set forth in claim 1 wherein the assembly has the size of a standard transistor-outline header.

7. The transistor header assembly set forth in claim 1 wherein the EML is adapted to be operated at an operating temperature greater than an ambient temperature in which the transistor header assembly is operated.

8. The transistor header assembly as set forth in claim 8 wherein the operating temperature is in the range of 30°C to 50°C and the ambient temperature is in the range of 20°C to 30°C.

9. The transistor header assembly set forth in claim 1 wherein the EML is adapted to be operated at an operating temperature in the range of 30°C to 50°C and the transistor header assembly operates in an ambient temperature in the range of 0°C to 70°C.

10. A transistor header assembly as set forth in claim 1, wherein the transistor header assembly is included in a transmitter optical subassembly for use in an optical system, the transmitter optical subassembly including:

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a subassembly casing, wherein the transistor header assembly is substantially disposed in a posterior end of the subassembly casing;

an optical lens assembly optically coupled to the transistor header assembly; and

a receptacle optically coupled to the optical lens, wherein the receptacle is adapted to mate with a standards based optical device.

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11. A method of utilizing an EML and an associated laser driving source in a transistor header assembly to generate optical output comprising:

operating the EML at a temperature elevated from an ambient temperature;

monitoring the optical output of the EML; and

adjusting the associated laser driving source to maintain the optical output at a constant carrier frequency.

12. A method as set forth in claim 11 wherein the ambient temperature is between 20°C to 30°C and the elevated temperature is 30°C to 50°C.

13. A method as set forth in claim 11 wherein monitoring comprises evaluating the light received by a photodiode, wherein the photodiode is disposed in the transistor header assembly near the EML.

14. A method as set forth in claim 11 wherein adjusting comprises varying at least one of a current delivered to a laser in the EML and a voltage or a current delivered to a modulator of the EML.

15. A method as set forth in claim 11, further comprising using a thermoelectric cooler to stabilize the wavelength of the optical output of the EML.

16. A method as set forth in claim 15, wherein the optical output of the EML is used in a dense wavelength division multiplexing application.

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17. A method of making a transistor header assembly comprising:

providing a base wherein the base has a device side and a connector side;

extending a platform through both the device side and the connector side, wherein the conductive platform includes a conductive pathway extending substantially through the platform;

securing an EML to the platform on the device side of the platform; and

electrically connecting the EML to the conductive pathway.

18. A method as set forth in claim 17 further comprising disposing an active temperature control device on at least a portion of the device side of the platform.

19. A method as set forth in claim 17 further comprising disposing temperature sensing device on at least a portion of the device side of the platform.

20. A method as set forth in claim 17 further comprising shaping the conductive pathway to form a transmission line adapted to match a load impedance of the EML with a laser driving source.

21. A method as set forth in claim 17, further comprising:

providing a transmitter optical subassembly casing;

disposing the transistor header assembly in the transmitter optical subassembly;

placing a lens assembly in the transmitter optical subassembly casing such that the lens assembly is optically coupled to the EML;

coupling an isolator optically to the lens assembly; and

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attaching a receptacle to the transmitter optical subassembly casing such that the receptacle is adapted to propagate light from the isolator to an external fiber optic device.

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22. A transistor header assembly comprising:

a base, wherein the base has a device side and a connector side;

a platform extending through the base;

a conductive pathway disposed on the platform, wherein the conductive pathway comprises:

a connector side connector;

a device side component mounting location; and

a transmission line that is configured to match the impedance of a device mounted at the device side mounting location to a circuit connected to the connector side connector.

23. A transistor header assembly as set forth in claim 22 further comprising an EML coupled to the device side mounting location;

24. A transistor header assembly as set forth in claim 22 wherein the conductive pathway comprises a plurality of isolated traces wherein the plurality of isolated traces is of a sufficient number to control an integrated circuit laser driver.

25. A transistor header assembly as set forth in claim 22 wherein the transmission line forms a 25 ohm transmission line.

26. A transistor header assembly as set forth in claim 22 wherein the transmission line forms a 50 ohm transmission line.

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